

a light-absorptive state such that each shutter strip is in its light-transmissive state at least partly while each imaging line associated with that strip is providing light for creating the image, the shutter strips constituting parts of a liquid-crystal structure in which liquid-crystal material comprises host cholesteric liquid crystal and guest black dichroic dye, part of the liquid-crystal material being present in each shutter strip and, when that shutter strip is in its light-absorptive state, having a cholesteric twist whose twist pitch is no more than 5 μm .

2. (Previously presented) A display as in Claim 1 wherein each shutter strip (a) transmits at least a portion P_{T-TS} of incident visible light provided from each imaging line associated with that strip when it is in its light-transmissive state and (b) absorbs at least a portion P_{A-AS} of incident visible light provided from outside the display when that strip is in its light-absorptive state, $P_{T-TS} + P_{A-AS}$ being greater than 1.

3. (Previously presented) A display as in Claim 2 wherein each shutter strip transmits up to a portion P_{T-AS} of incident visible light provided from outside the display, $P_{T-TS} - P_{T-AS}$ being at least 0.1.

4. (Previously presented) A display as in Claim 1 wherein each shutter strip outwardly appears dark when it is in its light-absorptive state.

5. (Canceled)

6. (Previously presented) A display as in Claim 1 wherein:
each imaging line is selectively activated to provide light which produces that imaging line's part of the image; and
each shutter strip is in its light-transmissive state at least largely while each imaging line associated with that strip is activated.

7. (Previously presented) A display as in Claim 6 wherein, during operation of the display, each shutter strip is also in its light-transmissive state largely when each activated imaging line associated with that strip is essentially fully black.

8. (Previously presented) A display as in Claim 6 wherein, during operation of the display, a variably selectable plurality of consecutive ones of the shutter strips are simultaneously in their light-transmissive states when at least one other of the shutter strips is in its light-absorptive state.

9. (Previously presented) A display as in Claim 8 wherein the selectable plurality of shutter strips are simultaneously in their light-transmissive states when a variably selectable one of the imaging lines associated with that plurality of shutter strips is activated and each other imaging line associated with that plurality of shutter strips is deactivated.

10. (Previously presented) A display as in Claim 6 wherein:
the imaging lines are selectively activated in response to a multiplicity of selection signals; and
the shutter strips switch between their light-transmissive and light-absorptive states largely in response to the selection signals or/and at least one selection generation signal utilized in generating the selection signals.

11. (Previously presented) A display as in Claim 10 wherein:
each imaging line becomes activated when a different corresponding one of the selection signals goes to a selection condition and becomes deactivated when the corresponding selection signal leaves its selection condition;
no more than part of the selection signals are simultaneously at their selection conditions at any time during normal operation of the display; and
each shutter strip is in its light-transmissive state at least largely while the selection signal for each imaging line associated with that strip is at that selection signal's selection condition.

12. (Previously presented) A display as in Claim 11 wherein substantially only one of the selection signals is at that selection signal's selection condition at any time during normal operation of the display.

13. (Previously presented) A display as in Claim 12 wherein each imaging line emits light in response to radiation that impinges selectively on light-emissive material of that imaging line.

14. (Previously presented) A display as in Claim 13 wherein the light-emissive material comprises phosphor.

15. (Previously presented) A display as in Claim 11 wherein one of the shutter strips is in its light-transmissive state while the selection signal for each imaging line associated with that shutter strip is not at that selection signal's selection condition.

16. (Previously presented) A display as in Claim 10 further including a control component for selectively placing the shutter strips in their light-transmissive and light-absorptive states in response to the selection signals or/and each selection generation signal.

17. (Previously presented) A display as in Claim 16 wherein the control component comprises a group of control elements for selectively providing light that determines placement of the shutter strips in their light-transmissive and light-absorptive states.

18. (Previously presented) A display as in Claim 17 wherein each control element is operable to provide light that causes an associated one of the shutter strips to be in a specified one of its light-transmissive and light-absorptive states.

19. (Previously presented) A display as in Claim 17 wherein the light provided by the control elements comprises part of the light provided by the imaging lines.

20. (Previously presented) A display as in Claim 6 wherein each imaging line comprises a line of laterally separated imaging elements.

21. (Previously presented) A display as in Claim 20 wherein each imaging element is light emissive.

22. (Previously presented) A display as in Claim 21 wherein each imaging element emits light in response to radiation that impinges selectively on light-emissive material of that imaging element.

23. (Previously presented) A display as in Claim 22 wherein the light-emissive material comprises phosphor.

24. (Previously presented) A display as in Claim 22 wherein the radiation comprises electrons.

25. (Previously presented) A display as in Claim 21 wherein each imaging element emits light in response to a potential across material of that imaging element.

26. (Previously presented) A display as in Claim 20 wherein each imaging element comprises a light valve.

27. (Previously presented) A display as in Claim 26 wherein each light valve includes means for providing light selectively transmitted by that light valve.

28. (Previously presented) A display as in Claim 1 wherein:
the imaging lines are regularly updated in response to a multiplicity of selection signals; and
the shutter strips switch between their light-transmissive and light-absorptive states largely in response to the selection signals or/and at least one selection generation signal utilized in generating the selection signals.

29. (Previously presented) A display as in Claim 28 wherein each imaging line continues to produce its updated part of the image largely until that imaging line's part of the image is updated again.

30. (Previously presented) A display as in Claim 1 wherein the image-producing component has first and second plate structures that together generate the image, the plate

structures being spaced apart from, and extending generally parallel to, each other in an active display region.

31. (Previously presented) A display as in Claim 30 wherein the plate structures are generally flat.

32. (Previously presented) A display as in Claim 30 wherein the image-producing component comprises a generally flat cathode-ray tube display in which the first and second plate structures respectively comprise an electron-emitting device and a light-emitting device.

33. (Previously presented) A display as in Claim 32 wherein:
each imaging line comprises a line of laterally separated light-emissive imaging elements of the light-emitting device; and
the electron-emitting device emits electrons that selectively strike the light-emissive imaging elements and cause them to emit light that produces the image.

34. (Previously presented) A display as in Claim 1 wherein the image-producing component comprises one of:
a generally flat cathode-ray tube display;
a generally flat liquid-crystal display;
a generally flat plasma display;
a generally flat electroluminescent display;
a generally flat light-emitting diode display; and, aside from the preceding displays,
a further generally flat display in which the imaging lines comprise phosphor which selectively emits light to produce the image.

35. (Previously presented) A display as in Claim 34 wherein the image-producing component employs line-at-a-time activation for updating the imaging lines.

36. (Previously presented) A display as in Claim 34 wherein the light-emitting diode display is of organic type.

37. (Previously presented) A display as in Claim 34 wherein the further display in the image-producing component comprises:

- a liquid-crystal device; and
- a phosphor-based light-emitting device which selectively emits light when excited by light provided by the liquid-crystal device.

38. (Previously presented) A display as in Claim 34 wherein the further display in the image-producing component comprises:

- a light-providing portion;
- an electron-emitting portion which emits electrons upon being excited by light furnished by the light-providing portion; and
- a phosphor-based light-emitting device which selectively emits light when struck by electrons emitted by the electron-emitting portion.

39. (Previously presented) A display as in Claim 38 wherein the light-providing portion comprises an electroluminescent device.

40. (Previously presented) A display as in Claim 1 wherein the imaging lines extend largely parallel to one another, whereby the shutter strips extend largely parallel to one another.

41. (Canceled)

42. (Previously presented) A display as in Claim 1 wherein the liquid-crystal material is capable of being controlled to selectively transmit an image defined by unpolarized light incident on the liquid-crystal material.

43. (Canceled)

44. (Previously presented) A display as in Claim 1 where the guest black dichroic dye comprises long molecules which roughly align with long molecules of the host cholesteric liquid crystal.

45. (Canceled)

46. (Previously presented) A display as in Claim 1 wherein the cholesteric twist of each shutter strip in its light-absorptive state is at least 180°.

47. (Previously presented) A display as in Claim 46 wherein the cholesteric twist of each shutter strip in its light-absorptive state is at least 360°.

48. (Canceled)

49. (Previously presented) A display as in Claim 1 wherein the twist pitch of each shutter strip in its light-absorptive state is no more than 3 μm .

50. (Previously presented) A display as in Claim 1 wherein the liquid-crystal material is no more than 10 μm in thickness.

51. (Previously presented) A display as in Claim 1 wherein the black dichroic dye has a concentration of 0.1 - 10 wt % in the host cholesteric liquid crystal.

52. (Previously presented) A display as in Claim 51 wherein the concentration of the black dichroic dye is 0.5 - 5 wt %.

53. (Canceled)

54. (Previously presented) A display as in Claim 1 wherein each shutter strip in the liquid-crystal structure includes:

a different corresponding one of a set of laterally separated first electrical conductors;
and

a portion, situated opposite the corresponding first conductor, of a second electrical conductor spaced apart from the first conductor, part of the liquid-crystal material being situated between the corresponding first conductor and the portion of the second conductor.

55. (Previously presented) A display as in Claim 1 wherein the display has an aspect ratio of average lateral dimension to maximum thickness of at least 4.

56. (Previously presented) A display as in Claim 1 wherein the image-producing component is matrix addressed

57. (Previously presented) A display comprising:
an image-producing component having a multiplicity of imaging lines for producing an image, each imaging line being regularly updated to provide light that produces part of the image, largely all of each such image part being displayed largely simultaneously at any time when that image part is being displayed; and

a set of shutter strips, each (a) associated with at least one of the imaging lines, (b) situated in front of each so-associated imaging line outside the image-producing component, and (c) being switched during operation of the display between a light-transmissive state and a light-absorptive state such that each shutter strip is in its light-transmissive state at least partly while each imaging line associated with that strip is providing light for creating the image, the shutter strips constituting parts of a liquid-crystal structure in which liquid-crystal material comprises host cholesteric liquid crystal and guest black dichroic dye, part of the liquid-crystal material being present in each shutter strip and, when that shutter strip is in its light-absorptive state, having a cholesteric twist whose twist pitch is no more than 5 μm .

58. (Previously presented) A display as in Claim 57 wherein each shutter strip (a) transmits at least a portion P_{T-TS} of incident visible light provided from each imaging line associated with that strip when it is in its light-transmissive state and (b) absorbs at least a portion P_{A-AS} of incident visible light provided from outside the display when that strip is in its light-absorptive state, $P_{T-TS} + P_{A-AS}$ being greater than 1.

59. (Previously presented) A display as in Claim 57 wherein:
the imaging lines are regularly updated in response to a multiplicity of selection signals; and

the shutter strips switch between their light-transmissive and light-absorptive states largely in response to the selection signals or/and at least one selection generation signal utilized in generating the selection signals.

60 - 124. (Canceled)

125. (Previously presented) A method comprising the following steps for manufacturing a flat-panel display:

forming an image-producing flat-panel component having a multiplicity of imaging lines for producing an image such that each imaging line is regularly updatable to provide light that produces part of the image;

forming a shutter comprising a set of shutter strips that constitute parts of a liquid-crystal structure in which liquid-crystal material comprises host cholesteric liquid crystal and guest black dichroic dye; and

placing the shutter over the image-producing component so that each shutter strip is (a) associated with at least one of the imaging lines, (b) situated in front of each so-associated imaging line outside the image-producing component, and (c) switchable during display operation between a light-transmissive state and a light-absorptive state such that each shutter strip is in its light-transmissive state at least partly while each imaging line associated with that strip is providing light for creating the image, part of the liquid-crystal material being present in each shutter strip and, when that shutter strip is in its light-absorptive state, having a cholesteric twist whose twist pitch is no more than 5 μm .

126. (Previously presented) A method as in Claim 125 wherein the first-mentioned forming step comprises assembling first and second plate structures together through an outer wall to form the image-producing component.

127. (Previously presented) A method comprising the steps of:

producing an image by regularly updating each of a multiplicity of imaging lines of an image-producing flat-panel component to provide light that produces part of the image; and

switching each of a set of shutter strips, each associated with at least one of the imaging lines and being situated in front of each so-associated imaging line outside the image-producing component, between a light-transmissive state and a light-absorptive state such that each shutter strip is in its light-transmissive state at least partly while each imaging line associated with that strip is providing light for creating the image, the shutter strips constituting parts of a liquid-crystal structure in which liquid-crystal material comprises host cholesteric liquid crystal and guest black dichroic dye, part of the liquid-crystal material being present in each shutter strip and, when that shutter strip is in its light-absorptive state, having a cholesteric twist whose twist pitch is no more than 5 μm .

128. (Previously presented) A method as in Claim 127 wherein:
the producing step involves regularly updating the imaging lines in response to a multiplicity of selection signals; and
the switching step involves switching the shutter strips between their light-transmissive and light-absorptive states largely in response to the selection signals or/and at least one selection generation signal utilized in generating the selection signals.

129 and 130. (Canceled)

131. (Previously presented) A display as in Claim 1 wherein largely all of the image part produced by the light provided by each imaging line is displayed largely simultaneously.

132. (Previously presented) A display as in Claim 57 wherein the twist pitch of each shutter strip in its light-absorptive state is no more than 3 μm .

133. (Previously presented) A display as in Claim 57 wherein the liquid-crystal material is no more than 10 μm in thickness.

134. (Previously presented) A display as in Claim 57 wherein the cholesteric twist of each shutter strip in its light-absorptive state is at least 360°.

135. (Previously presented) A method as in Claim 125 wherein the twist pitch of each shutter strip in its light-absorptive state is no more than 3 μm .

136. (Previously presented) A method as in Claim 125 wherein all of the image part produced by the light provided by each imaging line is displayed largely simultaneously at any time when that image part is being displayed.

137. (Previously presented) A method as in Claim 127 wherein the twist pitch of each shutter strip in its light-absorptive state is no more than 3 μm .

138. (Previously presented) A method as in Claim 127 wherein all of the image part produced by the light provided by each imaging line is displayed largely simultaneously at any time when that image part is being displayed.

139 - 154. (Canceled)